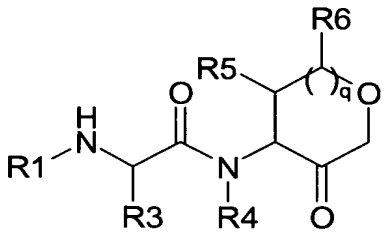
Claims

1. A compound of the formula (IV):



where:

R1 = R'C(O) , R' SO2 ,

R' = a bicyclic, saturated or unsaturated, 8-12 membered ring system containing 0-4 hetero atoms selected from S, O and N, which is optionally substituted with up to four substituents independently selected from groups a), b) and c) below;

a) a cyclic group which may be linked direct to the R' ring or via an alkyl, alkylether, alkylthioether, alkylamine, alkylamide, alkylsulphonamide, alkylsulphone, alkylurea, alkylketone or alkylester linker; or

b) H, C1-7alkyl, C3-6cycloalkyl, OH, SH, NH_2 , NHC1-3alkyl, $N(C1\text{-}3alkyl)_2$, halogen; or

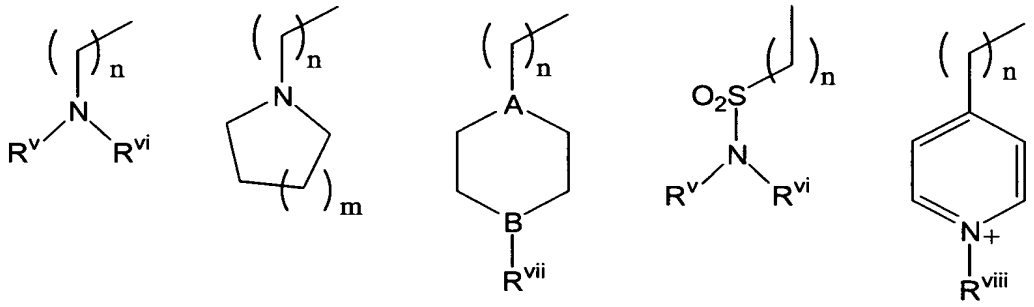
c) O-C1-4alkyl, S-C1-4alkyl, SOC1-4alkyl, SO2C1-4alkyl, CO2C0-4alkyl, NHCOC0-4alkyl, CONHC0-4alkyl, COC0-C4alkyl, NHC(=NH)NH2;

R4 = H, C1-7-alkyl, Ar-C1-7-alkyl, Ar, C3-7-cycloalkyl; C2-7alkenyl,;

R3 = C1-7-alkyl, C2-C7 alkenyl, C3-7-cycloalkyl, Ar-C1-7-alkyl, Ar;

R5 = C1-7-alkyl, halogen, Ar-C1-7-alkyl, C0-3-alkyl-CONR3R4 or R^{iv};

R^{iv} =



where n = 1-3, m = 1-3;

R^v, R^{vi} = H, C1-7-alkyl;

A = N, CH; B = N, O, S, CH;

R^{vii} = absent when B = O, S; or R^{vii} = H, C1-7-alkyl when B = N, CH;

R^{viii} = O, C1-7-alkyl;

H, C1-7-alkyl, Ar-C1-7-alkyl, C1-3-alkyl-SO2-R^{ix}, C1-3-alkyl-C(O)-NHR^{ix} or CH_2XAr,

R^{ix} is C1-7-alkyl. ArC1-7-alkyl or C3-C6-cycloaklyl;

q is 0 or 1

and pharmaceutically acceptable salts thereof.

2. A compound according to claim 1, wherein R4 and/or R6 is hydrogen.

3. A compound according to claim 1 wherein the R' bicyclic ring is selected from naphthyl, quinolyl, benzofuranyl, benzothienyl, indolyl, indolinyl.

4. A compound according to claim 3, wherein the linkage is the 2 position of the R' ring.

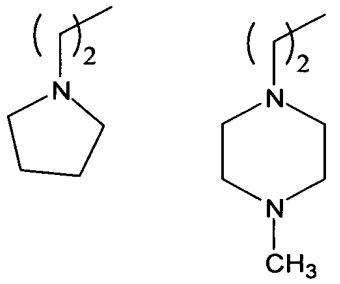
5. A compound according to claim 1 wherein R' is substituted with morpholine or N-methylpiperidine linked through an alkyl or alkylether linkage.

6. A compound according to claim 1, wherein R1 is R'C(O).

7. A compound according to claim 1, wherein R3 is 2-methylprop-1-enyl, benzyl or especially i-butyl.

8. A compound according to claim 1, wherein the stereochemistry at R3 corresponds to a natural or non natural L-amino acid.

9. A compound according to claim 1, wherein R5 is CH_3, C_2H_5, CH_2Ar, CH_2CONH_2, $(CH_2)_2CONH_2$, CH_2OH



10. A compound according to claim 9, wherein R5 is CH_3, CH_2CH_3, or CH_2OH..

11. A compound according to claim 1, wherein R5 and the C4 bond both have (R) stereochemistry.

12. A compound according to claim 1, wherein R5 and the C4 bond both have (S) stereochemistry.

13 A compound according to claim 1 wherein q is 1.

14. A compound according to claim 1, wherein q is 0.

15. A method for the treatment of disorders dependent upon the activity of cathepsin K comprising the administration of a compound as defined in claim 1 to a mammal in need thereof.

16. A method according to claim 15 wherein the disorder is a bone disorder such as periodontitis or osteoarthritis

17. A method according to claim 15 wherein the disorder is a cartilage or matrix degradation disorder such as osteoarthritis or rheumatoid arthritis.

18. A method according to claim 15 wherein the disorder is a neoplasia.

19. A method for the treatment of a parasite infection comprising the administration of a compound as defined in claim 1 to a mammal in need thereof.

20. A method for the control of parasites comprising the administration of a compound as defined in claim 1 to an invertebrate vector and/or to a locus prone to infestation of such a vector.